ABOUT A FOURIER TRANSFORM LIMITED, HIGH ENERGY, SCANNABLE LASER SOURCE

PATRICK DUPRÉ and TERRY A. MILLER, *Department of Chemistry, Ohio State University, 120 W 18th Ave, Columbus OH, 43210*.

We have build a new high resolution laser source based on a Ti:Sapphire cavity. This cavity is seeded by a commercial high resolution tunable Ti:Sa ring laser. The amplification is accomplished in two Ti:Sa rods pumped by a nanosecond Nd:YAG laser. The cavity/source mode matching is controlled by DA/AD Converters in conjunction with a Digital Signal Processor (DPS). The system can deliver up to 110 mJ in the tuning range (735-900 nm) of the Ti:Sa laser with a spectral resolution (7–20 MHz, hwhm) depending on the pump energy. This system can be used as a primary source for non-linear radiation generation (from UV to mid-IR). The principles of the source will be presented as well as its temporal/spectral features. Preliminary results obtained by using Cavity Ring Down Spectroscopy for test molecular species in a supersonic slit-jet expansion will be discussed.